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ENVIRONMENTAL ANALYSIS

FOR THE

WEEKSVILLE CREEK TIMBER SALE

PREPARED BY

Larry Ballantyne, Management Forester

Montana Department of Natural Resources and Conserevation

Northwestern Lands Office; Plains Unit

July 1999

PLEASE RETURN

CHECKLIST ENVIRONMENTAL ASSESSMENT

oject Name: WEEKSVILLE CREEK TIMBER SALE Proposed Implementation Date: May 2000

Proponent: DEPARTMENT OF NATURAL RESOURCES & CONSERVATION, NORTHWESTERN LAND OFFICE, KALISPELL/PLAINS UNIT

Type and Purpose of Action: The Department of Natural Resources & Conservation proposes to harvest approximately 7150 tons of timber from School Trust forest lands to generate revenue for the public school (C.S.) Trust grant, and to move the forest toward appropriate or desired future conditions characterized by the proportion and distribution of forest types and structures historically present on the landscape. No other revenue generating opportunities were identified or proposed during project scoping, so only forest product removal and sale were analyzed in the EA Checklist.

This proposal contains two alternatives for consideration; an Action and No Action alternative. The Action Alternative proposes seven harvest units totaling 218 acres and approximately 7150 tons of harvested timber. Included in the Action Alternative would be 2.3 miles new road construction, .5 miles road reconstruction, .5 miles road obliteration and .3 miles of road abandonment. Income to the Trust from this project is estimated at $ 225,000.

The lands involved in this proposed project are held by the State of Montana in trust for the support of the specific beneficiary institutions such as public schools, state colleges and universities, and other specific State institutions such as the School for the Deaf and Blind (Enabling Act of February 22, 1889; 972 Montana Constitution, Article X, Section 11). The board of Land Commissioners and the partment of Natural Resources and Conservation are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for these beneficiary institutions (Section 77-1-202, MCA). On May 30, 1996, the Department released the Record of Decision on the State Forest Land Management Plan (the Plan). The Land Board approved the Plan's implementation on June 17, 1996. The Plan outlines the management philosophy of DNRC in the management of state forested lands, as well as sets out the specific Resource Management Standards for ten resource categories.

The Department will manage the lands involved in this project according to the philosophy and standards in the Plan, which states:

> Our premise is that the best way to produce long-term income for the trust is to manage intensively for health and biologically diverse forests. Our understanding is that a diverse forest is a stable forest that will produce the most reliable and highest long term revenue stream. In the foreseeable future, timber management will continue to be our primary source of revenue and our primary tool for achieving biodiversity objectives.

Location: Section 36 T21N R27W County: Sanders

I. PROJECT DEVELOPMENT	
'. PUBLIC INVOLVEMENT, AGENCIES, GROUPS, OR INDIVIDUALS CONTACTED: Provide a chronology of the scoping and ongoing involvement for this project	Public involvement has been solicited through a combination of newspaper advertisements, plus letters sent to adjacent landowners and other known interested parties and organizations. Some public response was received and used to assist in defining issues and concerns, which may develop surrounding the proposed project. DNRC field foresters, DFW&P biologists, and an independent wildlife biologist contracted by DNRC identified management issues. Issues identified included increases in water yield, fine sediment delivery, noxious weed management, habitat conditions for T&E species, and habitat conditions for big game species. Issues and concerns have been resolved or mitigated through project design or will be included as specific contract requirements of the project (see Attachment 2, Specialist Reports; Attachment 7, Mitigation Measures; Attachment 8, Involved Agencies and Individuals).
2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:	A FRTA agreement with the USFS is in progress for the Weeksville Creek Road (Forest Service Road # 887) and existing tributary roads.
3. ALTERNATIVES CONSIDERED:	**No Action:** This alternative would not generate revenue for the Common School (C.S.) Trust Grant. Increased losses to insect and disease activity could be expected. Big game habitat would continue to deteriorate on this section. **Action:** The Action Alternative would harvest approximately 7150 tons (1.1 MMBF) from 218 acres, generating approximately $225,000 of income to the Common School (C.S.) Trust Grant. Additionally, the Action Alternative proposes to construct 2.3 miles of new road, reconstruct 0.5 miles of road, obliterate 0.5 miles of road, and abandon 0.3 miles of road. In general, silvicultural prescriptions are designed to reduce basal area to about 40 to 60 square feet per acre. A mixture of commercial thinning, group selection, sanitation, and seed tree regeneration treatments would be applied. When thinning from below, prescriptions would favor the retention of large diameter ponderosa pine and western larch. Sanitation treatments would focus on Ponderosa pine and Douglas fir stands that are under insect attack or have root disease. Seed tree harvests would retain 12 to 16 trees per acre and would favor Ponderosa pine or western larch whenever possible. Some control of losses to insects and diseases could be expected. Improvements to big game habitat would be completed through project activities (See Attachment 2, Specialists Reports: Attachment 3, Stand Prescriptions, and Attachment 7, Mitigation Measures).

II. IMPACTS ON THE PHYSICAL ENVIRONMENT

Resource	(Y/N) Potential Impacts
4. GEOLOGY AND SOIL QUALITY, TABILITY AND MOISTURE: Are fragile, compactible or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations?	[N] No specific soil problems were identified during the soil specialist and hydrologist review. Measures to minimize impacts as recommended by the DNRC specialists are included in the project design (See Attachment 2, Specialist Reports, Water Resources/Soils Write-up; Attachment 7, Mitigation Measures).
5. WATER QUALITY, QUANTITY AND DISTRIBUTION:Are important surface or ground water resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?	[Y] The project area, transportation system, and harvest plan have been reviewed by a DNRC hydrologist. Recommendations to minimize hydrologic impacts have been incorporated into the project design (See Attachment 2, Specialist Reports, Water Resources/Soils Write-up; Attachment 7, Mitigation Measures) .
6. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	[Y] This section is not located within a Class I Airshed. Some particulate will be introduced to the airshed from the burning of logging slash and broadcast burning as specified in the project plan. All burning will be conducted during times of adequate ventilation within the existing rules and regulations.
7. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present?	[N] Tree removal will create temporary but not permanent changes in the vegetative structure of the section. Silvicultural prescriptions have been developed to move stands toward old growth conditions. No old growth stands are affected by the Action Alternative. A biodiversity analysis has been completed and no adverse effects to cover types has been indicated (See Attachment 4, Biodiversity Analysis). No sensitive plants listed by the Montana Natural Heritage Program have been identified on this site.
8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?	[Y] Several species of big game use this section. Treatments have been designed to improve big game habitat where possible. Weeksville Creek is not listed as a bull trout stream. (See Attachment 2, Specialist Reports, Wildlife Write up and Hydrology/Soil write-up).
9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Sensitive Species or Species of special concern?	[N] Direct use by T&E species has not been indicated in the wildlife biologists reports (See Attachment 2, Specialist Reports. Wildlife Write-up).
10. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	[N] A DNRC archeologist and the Confederated Salish and Kootenai Tribes have reviewed the area. No significant sites or artifacts were identified during these reviews.
11.AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	[Y] Portions of the project area will be visible from the Weeksville Creek Road (FS Road # 887) and Montana Highway 200. One harvest unit abuts private ownership and will be visible from ranch buildings. The majority of land ownership and residences in the project area lie on Buffalo Bill Creek; no activity takes place adjacent to or visible from these residences.
12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	[N]
3. OTHER ENVIRONMENTAL DOCUMENTS ERTINENT TO THE AREA: Are there other studies, plans or projects on this tract?	[N]

III. IMPACTS ON THE HUMAN POPULATION	
Resource	Y/N) Potential Impacts and Mitigation Measures
'4. HUMAN HEALTH AND SAFETY: Will this ,roject add to health and safety risks in the area?	[N]
15. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[Y] Timber harvest will provide continuing industrial production in the Plains area. Improvements to big game habitat should provide increased recreational opportunity on this section.
16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so estimated number.	[N]
17. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	[N]
18. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc) be needed?	[Y] Log trucks hauling to the purchasing mill will result in temporary increases in traffic on the Weeksville Creek Road (FS Road # 887) and Montana Highway 200. This increase is a normal contributor and would occur at this or another location as logging activity moves around the countryside and cannot be considered a new or increased source.
19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[Y] All activities conducted on this section are designed under guidance provided by the State Forest Land Management Plan.
20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	[N]
1. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N]
22. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N]
23. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N]
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES: Is there a potential for other future uses for easement area other than for timber management? Is future use hypothetical?	[N]

EA Checklist Prepared By: Larry Ballantyne, Management Forester, Plains Unit, DNRC, July 21, 1999.

Signature: Larry Ballantyne Date: 7/21/99

IV. FINDING

25. ALTERNATIVE SELECTED:	In my opinion, the action alternative as proposed by the project leader meets the original project objectives. It complies with all pertinent environmental laws, DNRC State Forest Land Management Plan, and a consensus of professional opinion on limits of acceptable environmental impact. The no action alternative meets none of the project objectives. It provides no income to the Public School Trust. It does nothing to address the forest health issue. For these reasons, I have decided to select the action alternative for implementation on this project.
26. SIGNIFICANCE OF POTENTIAL IMPACTS:	After thorough review of the project file and all scoping documents, I find that all identified resource management concerns have been fully addressed in this environmental assessment. Specific mitigation measures for each resource concern are listed in Attachment 7. The action alternative provides for trust income now, while guaranteeing the long term productivity of the site. It provides for future financial returns through future timber management. It does not eliminate other as yet unidentified revenue generating opportunities on this site. I find that there will be no significant impacts to the human environment as a result of implementing the action alternative. Specific project design features and various resource management specialist recommendations have been implemented to ensure that this project will fall within the limits of acceptable environmental change and result in no significant effects.

27. Need for Further Environmental Analysis:

[ ] EIS [ ] More Detailed EA [X] No Further Analysis

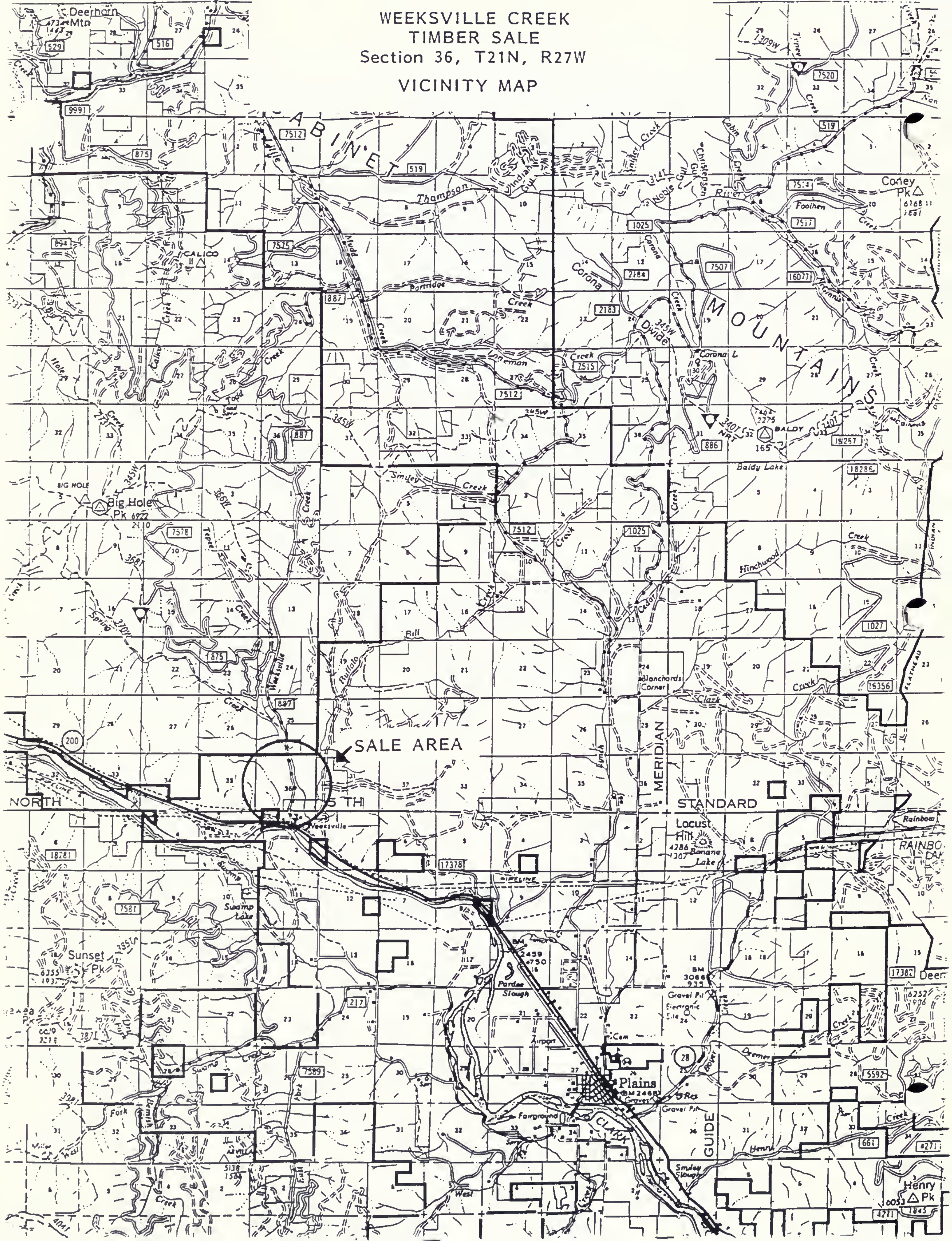
Checklist Approved By: Jon M. Hayes, Forest Management Supervisor, Plains Unit, DNRC
Name Title

Signature: Jon M. Hayes Date: 7-22-99

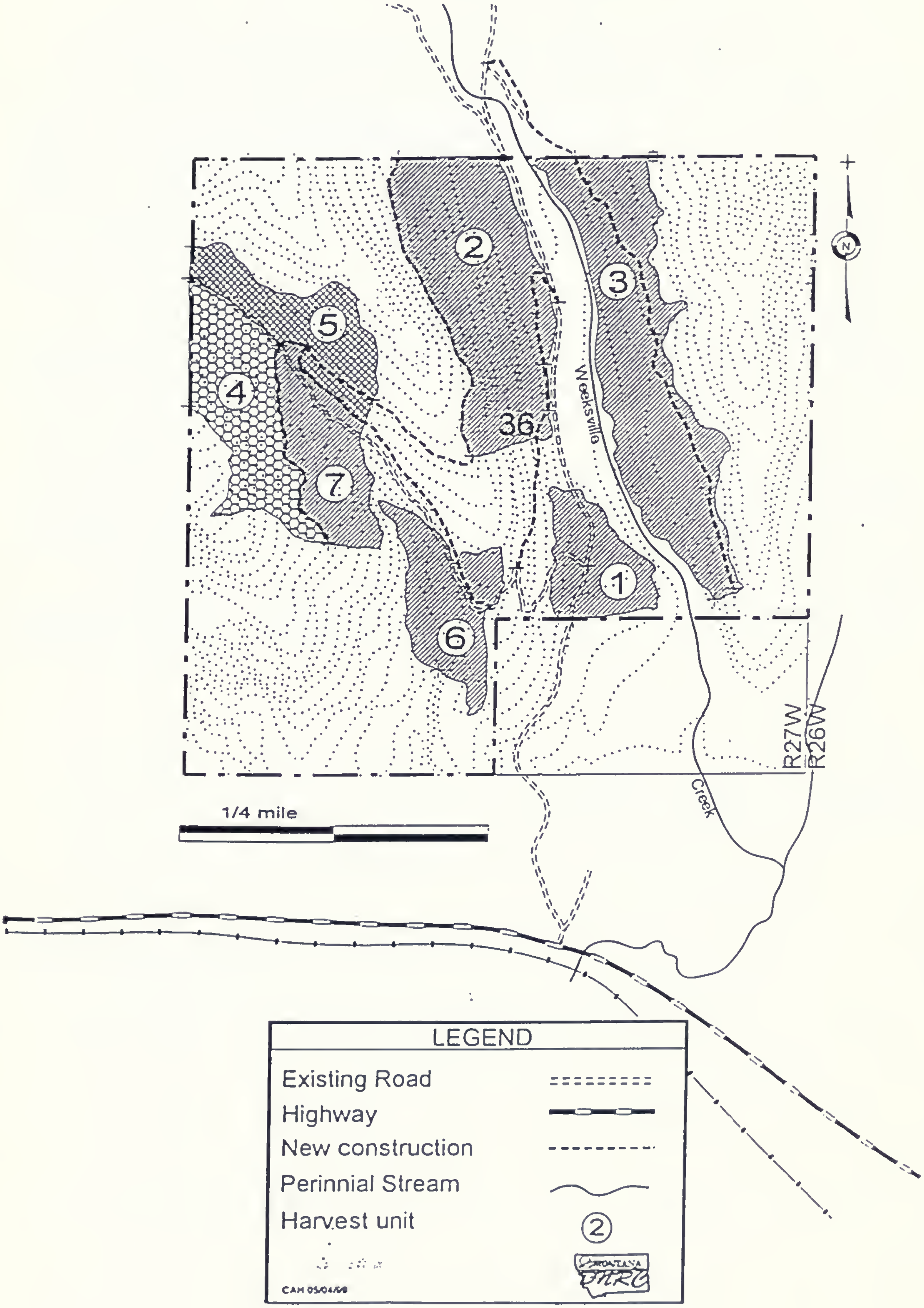
ATTACHMENT 1

WEEKSVILLE CREEK
TIMBER SALE
Section 36, T21N, R27W

VICINITY MAP



Weeksville Creek
Timber Sale
S36, T21N, R27W



ATTACHMENT 2

MEMORANDUM

TO: Jon Hayes, Forest Management Supervisor, Plains Unit
FROM: Marvin Miller, Plains Unit Manager
DATE: January 14, 1997
SUBJECT: Weeksville Creek Timber Sale Objectives

Primary Objective

The primary objective of the Weeksville Creek Timber Sale is to generate income for the Common School (CS) trust. This sale should provide approximately 1.0MMBF to 2.0MMBF of merchantable timber toward the unit's FY99 goal of 3.5MMBF.

Secondary Objectives

The secondary objective for this sale is to improve overall forest health by identifying and treating insect and disease problems that occur within the sale area, with the intent of minimizing timber volume and income loss caused by I&D activity.

In planning/preparing this sale, management direction of the State Forest Land Management Plan shall be closely followed. All applicable Streamside Management Zone rules and regulations and all BMP guidelines shall be applied.

Marvin W. Miller

Wolves

The Weeksville Creek area may contribute to the hunting habitat for the wolf pack that inhabit a territory approximately 10 miles northerly of the project area. If wolves from this northerly located pack do occasionally or regularly frequent the Weeksville Creek area as part of their hunting habitat, white-tailed deer are probably the primary ungulate prey species in this area.

No Action Alternative:
Under this alternative, habitat conditions would remain as they presently are and existing contributions of the project area to the northerly located wolf pack would not be altered for the present or the near future.

Action Alternative:
The action alternative would reduce canopy coverage and basal area in 6 units totaling about 218 acres. The intensity of timber harvest activities in the project area is not anticipated to affect prey concentrations beyond the local area. Timber harvest activities during the big game wintering season usually tend to locally concentrate white-tailed deer, which feed upon lichen, tree tops and tree slashing that are made available in the timber removal process. This activity would be a positive benefit to wolves within the project area but probably a neutral to slightly negative affect for the surrounding areas within their hunting habitat if deer concentrations were affected by the timber harvest activities. Other potential ungulate prey species are not expected to be adversely affected during the winter period by the proposed timber harvest. Timber harvest activities in the non-wintering season when ungulate populations are widely distributed would have very negligible affects on wolves that may use the Weeksville Creek area as part of their hunting habitat.

Effects:
The stands and habitats within the environments affected by this timber harvest will not be altered beyond conditions that exist in other occupied winter range sites near the project area and along the Clark Fork River. The attributes of the project area that may contribute to the needs of the wolf pack will not be changed. Ungulate prey species should not be adversely impacted as a result of the timber harvest but may actually increase overtime as palatable understory vegetation increases in abundance and distribution and as noxious vegetation is reduced in density or eliminated as part of the understory vegetation component. A reduction of open road density, particularly in the upland portions of the project area, through closure of a road system used to harvest timber will enhance security for prey species that inhabit this possible hunting habitat for the wolf pack located about 10 miles northerly of the project area. All of these conditions that are expected results of the timber harvest in Weeksville Creek represent a positive effect to wolves for the present and future.

Bald Eagle

The Weeksville Creek project area is located within 1 1/4 miles of the Clark Fork River. It is also located within 4 miles of 2 bald eagle nests. The closest nest is about 3 miles westerly of the project area and is situated near the extreme edge of Zone III of the home range radius of the bald eagles using that site. The proximity of and terrain in the Weeksville Creek project area provide a potential for nesting and other uses by bald eagles, particularly in the southerly portions of the project area closest to the Clark Fork River. The project area may contribute to the foraging opportunities for eagles, particularly in situations where big game carcasses occur in the late winter and early spring period.

No Action Alternative:
Under this alternative, the relatively open terrain that now exists in the project area would remain unchanged and uses that may now occur by bald eagles in the project area also would remain unchanged. Opportunities to enhance potential nesting or foraging by bald eagles would be deferred to future stand treatments.

Action Alternative:
Harvest unit treatments that retain large diameter dominant ponderosa pine, western larch and suitable Douglas fir as components of the overstory (especially scattered overstory trees that exceed the average age of the general overstory in units 1 and 3 and where possible in unit 6) and retain snags greater than 14 inches in diameter would increase the potential for resting or nesting by bald eagles and would be positive, intermediate steps to developing long term habitat preferences for bald eagles in the project area. Foraging opportunities could increase in the future as the forest canopy is reduced to allow increases in palatable understory vegetation and increases in ungulate populations.

Effects:
All vegetation treatments in the project area that are anticipated to move stands toward an old growth condition, that retain occasional scattered large-diameter remnants of earlier stands, that retain all snags greater than 14 inches in diameter and otherwise increase the potential for bald eagle uses over present levels would have positive effects from a direct, indirect and cumulative perspective. Vegetation treatments outside of the project area do not appear to have considered potential bald eagle habitat preferences and would not contribute in an additive sense to what may occur in the Weeksville Creek project area.

Fisher

The SMZ of Weeksville Creek does not currently contain vegetation features and characteristics that approach preferred habitats for fisher.

No Action Alternative:
Under this alternative, existing conditions of open canopy, few snags and little downed log material would remain and any uses of the Weeksville Creek project area by fisher would not be affected.

Action Alternative:
Deferring vegetation treatment in the SMZ of Weeksville Creek at this time will continue a

slow, long-term development of habitat conditions, particularly canopy coverage, that may be more suitable for potential fisher use. Snag and downed log conditions that are important for resting and denning may be enhanced under this alternative by treatments proposed on the boundary of the SMZ through which large coarse woody debris could be increased in the riparian area in the future.

Effects:
The direct, indirect and cumulative effects of the actions proposed in the Weeksville Creek project area are positive for fisher. Streamside habitats along Weeksville Creek above and below the project area, however, may not contribute to the potential habitat for fisher within the project area and, therefore, habitats within the project area even in an enhanced condition could be an isolated unit inadequate in size to support continuous occupancy by fisher in the future. The county road that parallels Weeksville Creek will continue to receive public use and compromise habitat security that may develop in the project area in the future.

Flammulated Owls

Flammulated owls are not known to occur in the project area although surveys by the Forest Service have documented their presence on National Forest lands in the Clark Fork area. Portions of stands 10, 11 and 12 have timber stands that present opportunities for harvest prescriptions that would move these stands toward preferred habitat for flammulated owls.

No Action Alternative:
Under the No Action Alternative, opportunities to move the forested vegetation toward preferred habitat conditions for flammulated owls would be deferred for future considerations.

Action Alternative:
Prescribed treatment in harvest unit 3, which includes those portions of stands 10, 11 and 12 that provide opportunities to move vegetation conditions toward preferred habitat for flammulated owls, will reduce basal area per acre by 50 percent, will retain all snags greater than 14 inches in diameter, will favor larger diameter ponderosa pine and western larch in the overstory and will remove non-merchantable understory that represent fuel ladders to the overstory. These activities have the potential to move this harvest unit toward more favorable and preferred habitat conditions in the future for flammulated owls.

Effects:
Treatment objectives developed for the identified stands under the Action Alternative represent positive effects for direct and cumulative considerations for flammulated owls in the project area.

Pileated Woodpeckers

Harvest units 2 and 3 contain the stands in which opportunities occur to begin the process of developing characteristics within the timbered stands to achieve preferred pileated woodpecker habitat for the future. The absence of large diameter snags and coarse woody debris are two conditions that limit present and potential pileated woodpecker uses in the project area.

No Action Alternative:
Under this alternative, the elements of preferred habitat for pileated woodpeckers that do not currently meet desired conditions would remain relatively unchanged into the future and opportunities to move these stands toward preferred habitat status would be postponed to the future.

Action Alternative:
Prescribed treatment in the harvest units 2 and 3 will favor ponderosa pine and western larch in the overstory and will retain all snags greater than 14 inches in diameter. These actions will begin the process of developing characteristics within the timbered stands to achieve preferred pileated woodpecker habitat in the future.

Effects:
Although some potential foraging and nesting opportunities are provided for in the Action Alternative, hazard reduction and site preparation prescriptions do not address the coarse woody debris needs as part of the feeding habitat requirements for pileated woodpeckers. The direct and cumulative effects for the proposed actions in the Weeksville Creek project area will only meet part of the needs for achieving preferred pileated woodpecker habitat over a longer term. Habitats outside the project area do not appear to contain characteristics essential to supporting pileated woodpecker use or contributing greatly to potential uses within the project area. Without the presence of pileated woodpeckers as primary cavity excavators, secondary cavity users like flammulated owls can not be expected to become established in the project area even though silvicultural treatments are favorable to such secondary cavity users.

Big Game

The Weeksville Creek project area is seasonal and yearlong habitat for a variety of big game species but is primarily used by white-tailed deer and bighorn sheep with lesser use by elk, mule deer, black bear and moose. Of these species, white-tailed deer are the more sensitive to changes in thermal cover conditions, especially during the winter period, and would be more adversely affected by reductions in overstory canopy than the other species.

No Action Alternative:
Under the No Action Alternative, all current levels of use by big game species would remain unchanged into the near future. In the absence of major events that would reduce coniferous overstory canopy and hiding cover, habitat effectiveness would increase over time as shade tolerant species become a larger component in the overstory and understory. Opportunities to alter canopy coverage, increase understory vegetation, reduce occurrence of noxious weeks and influence relative uses among the big game species would be postponed to future. Unrestricted public use of about 2.7 miles of roads on the project area would continue.

Action Alternative:
The prescribed treatments in the Weeksville Creek project area are intended to reduce basal area

per acre by at least 50 percent on 218 of the 560 acres. On 118 acres or 54 percent of the treated area, basal area per acre reductions of 60 percent or more will occur. Reductions in basal area per acre of this magnitude will lower thermal cover values below 50 percent on at least 21 percent of the project area and may alter use by white-tailed deer in winters of above average snow accumulations and below average temperatures. Recovery of effective thermal cover for white-tailed deer could occur in 25 to 40 years. Other species of big game that use the project area are more tolerant of reductions in canopy coverage and some, particularly bighorn sheep, elk, mule deer and moose, may benefit from the more open canopy and additional palatable understory vegetation that is an anticipated output of the treatments.
Access and management of access under the Action Alternative could reduce the existing miles of open roads by approximately 59 percent.

Effects:
For the big game component of wildlife that use the Weeksville Creek project area, the proposed action could adversely affect white-tailed deer use of at least 118 acres during the winter season for some 25 to 40 years but the other 4 species of big game, especially bighorn sheep, could benefit from the proposed action for a longer period of time. Approximately 1.6 miles of existing open roads and all new roads developed as part of the Action Alternative will be closed to vehicular access under the Action Alternative and will improve habitat effectiveness for all big game species on a yearlong basis and reduce the vulnerability of big game during the legal harvest seasons. The direct, indirect and cumulative effects of the proposed treatments in the Weeksville Creek project area will favorably benefit a much greater segment of the big game populations than they may impact. Habitats outside the project area should continue to provide existing contributions to the needs of big game that winter on and near the project area.

July 6, 1999
James Cross

Montana Department
of
Fish, Wildlife & Parks

Box 35
Thompson Falls, MT 59873
827-4389

18 September 1997

Jon Hayes, Management Forester
Dept. of Natural Resources & Conservation
P.O. Box 219
Plains, MT 59859

Dear Jon,

The following comments are for the proposed Weeksville Creek timber sale. A field review was conducted on 25 June 1997.

The area is used by deer, black bear and seasonally by elk. The area is good habitat for bighorn sheep and probably receives extensive use by this species, yearlong.

Bighorn sheep and black bear will benefit by creating moderate openings in the timbered habitat. These species can tolerate larger openings than deer or elk. Prescription fire could be used to create additional forage for all species. All roads should be constructed to minimal standards and then obliterated or physically gated to prevent vehicular traffic.

There are no know threatened or endangered species in the immediate area and as planned, this timber sale has no apparent impact to these species. Snags 14 inch or larger should be retained for cavity nesting wildlife.

I appreciate the opportunity to comment, if I can be of additional help, please call.

Sincerely,

Bruce Sterling
Area Wildlife Biologist

TO:	**Larry Ballantyne, Project Leader, Plains Unit** **Jeff Collins, Soil Scientist, FMB** **Gary Frank, Hydrologist, FMB** **Tony Nelson, Hydrologist, NWLO**
FROM:	**Marc Vessar, Hydrologist, NWLO**
SUBJECT:	**Water Resources/Soils Write-up for Weeksville Creek Timber Sale**
DATE:	**June 14, 1999**

Analysis Area

The proposed Weeksville Timber Sale Project Area is located on 560 acres of State land in T21, R27, Section 36. The analysis area is the Weeksville Creek watershed and a small face drainage to the Clark Fork River. Elevations within the sale area range between 2,440' at the point where Weeksville Creek crosses the southern boundary and 3,680' at the northwest corner of the section. Annual precipitation for the state land is 18-20".

Water Quality Standards

This portion of the Clark Fork River basin including the entire Weeksville Creek drainage is classified as a B-1 waterway by the Montana Department of Environmental Quality. Waters classified as B-1 are suitable for drinking, culinary and food processing purposes, after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply. State water quality regulations prohibit any increases in sediment above 'naturally occurring' concentrations in waters classified B-1 (ARM 17.30.623).

Naturally occurring means conditions or material present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil and water conservation practices have been applied. "Reasonable land, soil and water conservation practices" means methods, measures, or practices that protect present and reasonably anticipated beneficial uses. The State of Montana has adopted forestry Best Management Practices (BMPs) through its Non-point Source Management plan as the principle means of meeting Water Quality Standards.

There are no Water Quality Limited Segments (WQLS) within the project area.

Potential Issues

Land management activities such as timber harvest and road construction can potentially impact water quality and aquatic dependant resources. The primary impacts are direct sediment delivery to streams and the resulting effects to water quality and fisheries, a reduction in long-term woody debris recruitment, and increased water yield which may adversely affect stream channel morphology and sediment transport processes. These impacts are caused by erosion from road surfaces, skid trails, firelines, log landing , by reduction in recruitable tree numbers near streams, and by removal of vegetation which alters the water balance on site.

Primary water resource concerns associated with this project are (1) increase in water yield and (2) fine sediment production.

Cumulative Watershed Effects

The cumulative watershed effects boundary is established in order to define a point within the watershed where the effects from upstream activities are no longer detectable. It is designed to incorporate the differences in sediment and water transport processes within each major watershed as far downstream as they can be measured. In order to determine this point in the watershed, a combination of professional judgement, quantitative and qualitative analysis was used.

The cumulative watershed effects boundary incorporates the Weeksville Creek drainage including subwatersheds (Spring Creek and Tepee Creek). Due to unit prescription, design and location it is highly unlikely that any effects for the proposed activities will be detectable downstream of this point due to dilution from other activities from the both the Weeksville and Buffalo Bill watersheds.

HYDROLOGY AND FISHERIES

Weeksville Creek

Description: Weeksville Creek is a 13,220 acre fourth order watershed that includes two subwatersheds: Spring Creek (4,445 acres) and Tepee Creek (2,620 acres). Elevations within the Weeksville drainage range from 2,440 feet above sea level at the confluence with Buffalo Bill Creek to 6,960 feet at Big Hole Peak. Precipitation varies from 18" annually at the mouth to 60" at the highest elevation. The state section is located near the mouth of Weeksville Creek and therefore is in a low precipitation zone.

Existing Condition: Weeksville Creek is a perennial, Class 1 fish-bearing stream that flows north to south before meeting with Buffalo Bill Creek and continuing into the Clark Fork River. There are no tributaries to Weeksville Creek from the project area. Weeksville Creek is a Rosgen class B3/4 stream, which generally indicates a 'U' shaped channel with a floodplain roughly twice as wide as the stream. Channel substrate is gravel and cobble size. Field surveys during the winter 1998 indicate that the portion of Weeksville Creek flowing through the State owned land is generally stable with small infrequent areas of bank cutting. Beaver ponds exist at the upper extent of the state section and act as sediment retention basins. A limited amount of aggradation can be found in the vicinity of these ponds. Below the beaver ponds, moss is common on the stream bottom indicating stable substrate.

Cumulative Effects: The threshold set in accordance with SFLMP Watershed RMS#7 is 12% annual water yield increase over pre-disturbance conditions. As described in the SFLMP Record of Decision (page 22) a Level III watershed analysis was used to quantify the cumulative effects to Weeksville Creek. The R1 WATSED model was used to analyze the water yield increase after the Wee-Tepee EA in 1998. Table I displays the water yield information for Weeksville Creek.

Table I: Threshold and Existing Water Yield for Weeksville Creek

Watershed Size	Existing Water Yield Increase	Threshold of Concern	ECA to Increase WY by 1 percent
13,220 acres	8%	12%	330 acres

Fisheries: Fish species present in Weeksville Creek include non-hybridized westslope cutthroat trout and brook trout. Brook trout were found to be abundant and the westslope were incidental. No bull trout have been noted in Weeksville Creek.

Draw A

Description: Draw A is located in the western half of the State section and is situated on a southern aspect. The draw is an ephemeral, discontinuous channel and does not contribute surface flow to the Clark Fork River. Scour within the draw is limited to very short infrequent sections that are highly incised with a steep gradient.

Cumulative Effects: Due to the characteristics of Draw A, cumulative effects are assessed using the Level I Screening as described in the SFLMP ROD (page 22). Due to the low potential for impacts to this watershed, no further analysis was deemed appropriate.

Fisheries: Fish species do not exist in this channel due to the hydrologic characteristics.

Transportation

Roads within the Project area are built on well drained soils although some surface erosion is visible. Surface drainage features are necessary to bring the roads up to BMP standards. Site specific conditions are listed below.

*The road that crosses Draw A in the western half of section 36 does not have a culvert at the crossing.
*The first road off of the main Weeksville road in the state section is a steep, narrow road with visible surface erosion.

SOILS

Soil types within the project area have been divided into map units for description purposes (Plains Unit Soil Survey, 1985). In general, soils within the project area are well drained making them suitable for longer season tractor harvest with moderate compaction potential. Revegetation may be limited due to the drainage ability and the tendency for drought-like conditions. A description of soil types present in the Weeksville project area are found in Table I. A map of the soil units can be located in the Project File located at the Plains Unit office.

Table I: Soil Descriptions in Weeksville Project Area

SOIL MAP UNIT	DESCRIPTION
10UA	This landtype consists of well drained alluvial coarse textured gravelly sandy loams and cobbly loams. Bare soils have a moderate erosion potential. Soils of this landtype within the project area are located adjacent to Weeksville Creek.
15U	Soils within this landtype are the result of colluvial and alluvial processes. These well drained soils consist of a well developed layer of very gravelly silt loam over gravelly and cobbly sub-soils. Compaction potential from heavy equipment and erosion hazard from water is moderate. These soil types are located along the southern boundary of the state section within the Weeksville project area.
15J	Characteristics of this landtype include moderately well drained, silt or gravelly loam soils over subsoils which are very gravelly/cobbly loams. Moderate compaction potential and erosion hazard is associated with this landtype. This landtype is located above landtype 10UA along Weeksville Creek in the project area.
30M	This is the most widely distributed landtype within the project area consisting of deep well drained soils formed in calcareous colluvium and residium. Subsoils are very gravelly loam to sandy loam. Bare soils have a moderate ersion hazard rating.
64	This landtype consists mainly of steep mountain slopes with rock outcrops common. Gravelly loam soils are well drained and shallow to moderately deep. Due to the steepness of the terrain associated with this landtype, tractor harvest is generally not feasible. Bare soils have a low to moderate erosion hazard rating due to the high angular rock content.

This section discloses the anticipated direct, indirect and cumulative effects to water and soil resources within the affected environment. Cumulative effects within this section are analyzed with consideration of past, present and future planned actions within the analysis area.

Two alternatives were developed and discussed in Chapter 2 of this document. Issues relative to water and soil resources were introduced at the beginning of the Chapter 3 of the water resources report. These issues will be addressed in this chapter for the impacts to the hydrologic and soils environment within the project area.

HYDROLOGY AND FISHERIES

Water Quality

No Action Alternative: No road construction, reconstruction or timber harvest would be implemented under the No Action alternative. Therefore, this alternative would not result in negative direct impacts to water quality.

Action Alternative: Activities associated with this alternative are shown in Table II. Due to the location of harvest units and roads away from streams, low precipitation zone of the project area, and harvest unit design the potential for negative impacts to water quality is low. Road construction and reconstruction would incorporate surface drainage to reduce the potential for surface erosion on roads. Skid trails, newly constructed and reconstructed roads, and obliterated roads would be seeded immediately following the activity to reduce the potential for soil mobilization.

Table II: Activities Associated with the Action Alternative

Watershed	Road Construction (miles)	Road Reconstruction (miles)	Road Abandonment (miles)	Road Obliteration (miles)	Timber Harvest (acres)	ECA (acres)
Weeksville Cr	1.5	2.0	0	0.2	145	75
Draw A	0.75	0.25	0.3	0.7	140	64.75

Fisheries

No Action Alternative: This alternative has no timber harvest, road construction, reconstruction , obliteration or abandonment activities. Impacts to fish habitat and populations would not result from the implementation of this alternative. Fish habitat and populations would remain in the current condition until a large precipitation event invoke channel adjustments.

Action Alternative: Activities associated with this alternative are listed in Table II. Water quality would be protected using Best Management Practices and Streamside Management Zones. The water yield increase of less than one percent would not likely decrease the stability of the stream channel or result in negative impacts to fish habitat and fish populations.

Cumulative Watershed Effects

No Action Alternative: This alternative has no timber harvest, road construction, reconstruction, obliteration or abandonment activities. An increase in water yield or negative impacts to water quality would not result from the implementation of this alternative. Fish habitat and populations would remain in the current condition until a large precipitation event invoke channel adjustments.

Action Alternative: Existing annual water yield increase (WYI) for Weeksville Creek is approximately 8 percent over pre-disturbance levels when all past harvest activities are considered. The threshold of concern for the stream is 12%. Considering the precipitation zone and harvest design, a one percent increase in water yield would require an additional 330 ECA. This alternative would result in 75 ECA, which would increase the water yield less than one percent. Considering the stability of the stream channel, negative impacts to Weeksville Creek and it's aquatic life/habitat are not likely to occur.

Due to the hydrologic characteristics of Draw A (ephemeral, discontinuous) negative cumulative impacts are not likely to occur within or downstream of the project area.

SOILS

Cumulative Effects

No Action Alternative: Under this alternative, no change would be realized in long term soil productivity. Soil compaction would remain constant on existing roads and skid trails.

Action Alternative: Implementation of the Action Alternative would include mitigation measures to limit additional soil impacts. The proposed harvesting would utilize existing skid trails where suitable to limit cumulative soil compaction impacts. Soil productivity would be reduced in areas of new road construction and reconstruction. Abandoned roads would realize a slow reduction in soil compaction as vegetation reestablishes and soil productivity increases. Obliterated roads would result in an increased soil productivity due to the decompaction of soil and revegetation.

Mitigation measures recommended for the Action Alternative:

1) Construction of road drainage features with slash filter windrows.
2) Seed skid trails, areas of road construction/reconstruction and obliteration when activity is complete.

June 25, 1999

TO: LARRY BALLANTYNE, Forester, Plains Unit
MARK VESSAR, Hydrologist, NWLO
NORM MERZ, Biologist, NWLO

FROM: JEFF COLLINS

RE: WEEKSVILLE TIMBER SALE, Noxious Weed Control

Here are my comments on weeds and treatments revised from draft on March 23, 1999. This is a little more lengthy than normal due to the issue of control on bitterbrush sites. Please call me if you have comments or questions.

EXISTING NOXIOUS WEEDS

Knapweed and Sulphur cinquefoil occur along portions of existing access roads and open range sites mainly on drier southerly aspects and droughty sites. With no action, noxious weeds will continue to spread along roads and spread into dry site habitats unabated.

EFFECTS OF NOXIOUS WEED MANAGEMENT

Under the no-action alternative, noxious weeds will continue to spread along open roads and onto dry susceptible habitat types unabated.

The action alternatives will involve ground disturbing activities that have the potential to introduce or spread noxious weeds. With timber harvest on the drier south aspects, noxious weeds are expected to spread. For the action alternatives, an Integrated Weed Management (IWM) approach was considered by DNRC to meet the intent of the Weed Management Law and State Forest Land Management Plan.

For this project, a combination of prevention, revegetation, biocontrol and herbicide application on spot outbreaks are considered the most effective weed management treatments to slow the spread of noxious weeds and promote competitive, vegetation as outlined in this project weed management plan. DNRC would use silvicultural treatments to promote a vigorous, healthy tree canopy that would help shade out weeds over the long term. On open forest stands with extensive weeds, we would prioritize these sites area for a biocontrol release to help reduce weed density.

Some steeper, southerly aspects are open range with bitterbrush, that have extensive knapweed and cinquefoil on open forest sites of about 40 acres. A broadcast burn is planned to reinvigorate the bitterbrush. Without a follow-up herbicide treatment, noxious weeds and surface erosion would increase and native grasses decrease. Biocontrol insects could help reduce density of knapweed, but no bio-agents are currently available for sulphur cinquefoil, which would likely increase after the burn without some control effort to promote understory grasses. With herbicide application of Picloram (Tordon

tradename), the knapweed and cinquefoil would be greatly reduced and native grasses should increase ground cover. Most of the bitterbrush sites would be ground treated with herbicide in open areas around bitterbrush plants to: minimize damage to bitterbrush, promote established grasses and reduce erosion.
Where herbicide treatments are suited I would apply 1 pint per acre Tordon. The Sanders County Weed District (personnel communication with John Day) and FS had effective control at this low rate on knapweed and cinquefoil without killing the brush.

Due to slope steepness, an aerial application would be the lowest cost method of treatment, but application timing is important to be completed after the burn and prior to leaf out to prevent . With or without herbicide application, the bitterbrush should resprout after burning and herbicide effects would be minimal at this low rate.

Where knapweed is currently limited to portions of existing roads mainly on road edges, herbicide treatment may be considered for effective control on a site-specific basis. Under all alternatives the following IWM measures would be implemented to reduce existing weeds and limit the possible spread of noxious weeds in the project area.

*Clean all road construction and harvest equipment of plant parts, mud and weed seed to prevent the introduction of noxious weeds. Equipment will be subject to inspection by forest officer prior to moving on site.

*All newly disturbed soils on road cuts and fills would be promptly reseeded to site-adapted grasses to reduce weed encroachment and stabilize roads from erosion. For grass seeding to be effective it is important to complete seeding concurrent with road construction.

*Weed treatment measures would include herbicide treatment of noxious weeds along road segments, bitterbrush site and spot noxious weed occurrences. Where herbicide treatments are required by the forest officer, herbicide must be applied under the supervision of a licensed applicator following label directions in accordance with Department of Agriculture regulations, applicable laws and rules, and regulations of the Sanders County Weed Board.

*DNRC would establish a biocontrol release sites within the project area as insect are available.

*DNRC would monitor the project area for two years after completion of harvest to identify if noxious weeds occur on the site. If new noxious weeds infestations occur, a weed treatment plan will be developed and implemented.

CONTRACT SPECIFICATIONS

Contractor would be required to control weeds with herbicide methods, along access roads, locations on map and spot infestations as designated by the forest officer in charge.

* Herbicide Application

To reduce risk to aquatic and terrestrial resources the following will be required:

(1) All herbicides would be applied by licensed applicators in accordance with laws, rules and regulations of the State of Montana.

(2) All applications would adhere to the herbicide's specific label guidelines.

(3) Herbicide application of Picloram would not be general, but site specific to areas along roads where noxious weeds are occurring. All no-spray areas will be designated on the ground before application begins.

(4) Herbicides would not be applied to areas where relief may contribute runoff directly into surface water.

(5) Application would occur on relatively calm, dry days to limit drift and possible surface movement off road prisms.

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION

MARC RACICOT, GOVERNOR
1625 ELEVENTH AVE

STATE OF MONTANA

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TELEFAX NUMBER (406) 444-2684

PO BOX 201601
HELENA, MONTANA 59620-1601

February 6, 1997

MEMORANDUM

TO: Jon Hayes, Forest Management Supervisor, DNRC-Plains Unit

FROM: Patrick Rennie, DNRC Archaeologist PJR

RE: Blue Slide and Weeksville Creek Timber Sale Proposals

I have reviewed the information you sent to me regarding the above referenced, proposed timber sales. The liklihood for encountering cultural resources within either of those project areas should be sufficiently low that I am not recommending any additional archaeological investigative work.

If you have any questions let me know.

ATTACHMENT 3

PROPOSED WEEKSVILLE CREEK TIMBER SALE

TIMBER STAND/HARVEST UNIT PRESCRIPTIONS

****

Harvest Unit: 1 **Harvest Unit Acres:** 16

Elevation: 2600' **Slope:** 0 - 5% **Aspect:** Southeast

Habitat Type: PSME/SYAL

Soil Type: Gravelly silt loam, well drained and well developed.

Estimated Overstory Basal Area: 110 ft^2/acre

Description of Existing Stand: This stand is located on an essentially flat bench west of and adjacent to Weeksville Creek. The overstory consists primarily of Ponderosa Pine (85%), Douglas-fir (15%) and western larch (T). Overstory age averages 90 years, but scattered individual trees exceed 150 years in age. This overstory is evenly distributed and forms a moderately well closed upper canopy layer. DBH ranges from 12" to 20" in all species. Tree heights of all species generally fall between 75 and 90 feet, with western larch occasionally reaching 100'. An intermediate canopy of suppressed and poorly formed ponderosa pine occurs across the entire stand. Encroaching intermediate Douglas-fir is also a component of this layer. Regeneration is limited to scattered groupings of Douglas-fir. Very little ponderosa pine or western larch regeneration is present at this time. Timber salvage operations following a western pine beetle outbreak in 1994 and a blowdown event in 1996 have removed a small amount (<2%) of the mature timber from this stand. Insect and disease activity is not present in significant levels at this time. Large snags (>14" DBH) are found only rarely (<1/acre). Surface fuel loading of down material averages 3 to 4 tons/acre.

Treatment Objectives:

- Promote the older stand components of Ponderosa pine and western larch into a traditionally appearing open stand configuration.

- Reduce occurrence of insect activity within this stand.

Prescribed Treatment:

- Reduce basal area an average of 40 ft^2/ acre. Thin from below to remove suppressed Ponderosa pine and encroaching Douglas-fir. Retain large diameter dominant Ponderosa pine and western larch component of the overstory to meet the basal area specification. All existing snags > 14" DBH would be retained. Obvious cull overstory trees would be retained.

- Cut all non merchantable trees > 3' in height. Lop and scatter all slash from harvested trees and non merchantable material.

- Conduct a low intensity broadcast burn across the harvested stand area.

Hazard Reduction:

- Proposed broadcast burn would dispose of slash to meet hazard reduction requirements.

- Landing piles would be burned by DNRC crews following harvest activity.

Regeneration/Site Preparation:

- Regeneration is not a primary objective for this unit and stand.

- Spatial openings created by the proposed treatments should provide opportunities for establishment of natural regeneration of intolerant species.

Anticipated Future Treatment:

- The proposed treatment advances this portion of this stand toward an old growth condition. If successful this area will become a portion of the Plains Unit Old Growth Retention, with no future treatment anticipated at this time.

- Stand conditions would be monitored and evaluated at regular intervals following the project period. Salvage or sanitation operations associated with insect or disease occurrences, extreme weather events, or other unexpected circumstances would be evaluated on a case by case basis.

****

Harvest Unit: 2 **Harvest Unit Acres:** 52

Elevation: 2600' - 3200' **Slope:** 15% - 75% **Aspect:** East

Habitat Type(s): ABGR/XETE; PSME/VACA

Soil Type: Silt loam to gravelly loam, deep,and moderately well drained.

Estimated Overstory Basal Area: 160 Ft^2/acre

Description of Existing Stand: The two timber stands composing this unit begin at the bench west of Weeksville Creek and reach to the ridgetop. Although described as differing habitat types, phases of these types lend to a similar structure through both stands. The overstory consists primarily of mature Douglas-fir (80%), Ponderosa pine (15%) and western larch (5%). Trace amounts of overstory grand fir can be found at the very lowest elevations. Overstory age averages 90 years, but scattered individual trees exceed 120 years in age. This overstory forms a tightly closed canopy with the exception of openings created by storm damage and insect or disease activity. DBH ranges from 12" to 16 " in all species. Tree heights generally fall between 65 and 80 feet, with an occasional western larch reaching 100'. An intermediate canopy of poorly formed suppressed Douglas-fir exists throughout the stands. Regenerating grand fir and Douglas fir are found in the lower elevations of the stands. Regenerating Douglas-fir is found in the higher areas. Very little Ponderosa pine or western larch regeneration is present. Timber salvage operations following severe winter damage in 1996 have removed approximately 5% of the merchantable timber from these stands. Insect and disease activity is high in both stands, with major concentrations of root diseases affecting the Douglas-fir component. An estimated 60% of the Douglas-fir is affected by dwarf mistletoe. Large snags (> 14" DBH) are common (>4/acre) but those occurring near the Weeksville Creek road are easily accessed and removed by firewood cutters. Surface fuel loading of down material averages 25 to 30 tons/acre.

Treatment Objectives:

- Create a regenerating stand composed primarily of Ponderosa pine and western larch.

- Reduce the presence of insect and disease activity and its threat to surrounding timber stands.

Prescribed Treatment:

- Retain seed trees at approximately 16 per acre (≈ 50 ft spacing). Favor ponderosa pine and western larch wherever possible. Cut and slash all non merchantable trees > 3' in height.

- Retain all snags > 14" DBH.

- Maintain a minimum of 50' buffer between unit boundary and Weeksville Creek road to maintain wildlife security and visual screening.

Hazard Reduction:

- Broadcast burn entire unit to dispose of slash and meet hazard reduction requirements.

- Landing piles would be burned by DNRC crews following harvest activity.

Regeneration/Site Preparation:

- Broadcast burn as site preparation for natural regeneration.

Anticipated Future Treatment:

- Monitor and evaluate natural regeneration. Plant as necessary to establish proper stocking of regenerating stand.

- Continue to monitor and evaluate for stocking levels for future pre-commercial and commercial thinning operations.

****

Harvest Unit: 3 **Harvest Unit Acres:** 58

Elevation: 2600' - 2800' **Slope:** 0 - 40% **Aspect:** West

Habitat Type(s): PSME/CARU

Soil Type: Silt loam to gravelly loam, deep, and moderately well drained.

Estimated Overstory Basal Area: 120 ft^2/acre

Description of Existing Stand: This unit lies on a gently rolling and increasingly sloped bench east of Weeksville Creek. The overstory is composed of Ponderosa pine (90%), Douglas-fir (5%), and western larch (5%). The average overstory age is 90 years, with scattered individual trees exceeding 200 years. This overstory is very evenly distributed and forms a well closed upper canopy layer. DBH ranges from 10" to 16" in all species, with an occasional large diameter individual remnant from historic stands. Tree heights of all species generally fall between 65 and 75 feet, with scattered western larch reaching 110'. An intermediate canopy layer of suppressed and poorly formed Ponderosa pine covers the entire stand. Advanced regeneration of Douglas-fir is found in small pockets in scattered locations of the unit. New regeneration is rarely found and is limited to small pockets of Douglas-fir. Very little Ponderosa pine or western larch regeneration is present at this time. Timber salvage operations following a western pine beetle outbreak in 1994 have removed a small amount (<1%) of mature timber from this area. Occurrence of insect and disease activity is low, although western pine beetle and mountain pine beetle are present in small numbers at this time. Western gall rust is somewhat active in Ponderosa pine. Large snags (> 14" DBH) are scattered throughout the stand (2 to 4/acre). Surface fuel loading averages 3 to 4 tons/acre.

Treatment Objectives:

- Reduce stocking to promote the development of a traditionally appearing open Ponderosa pine stand.

- Control insects and diseases affecting Ponderosa pine in this stand.

Prescribed Treatment:

- Reduce basal area to an average of 60 ft^2 per acre. Thin from below favoring larger diameter Ponderosa pine and western larch.

- Remove Ponderosa pine affected by insects and disease.

- Retain all snags greater than 14' DBH.

- Remove non-merchantable trees providing fuel ladders beneath residual overstory trees.

Hazard Reduction:

- Retain a minimum of 30% slash < 3" in diameter on the harvest unit. Lop and scatter this slash to a maximum of 18" in depth.
- Landing piles would be burned by DNRC crews following harvest activity.

Regeneration/Site Preparation:

- Regeneration is not a primary objective for this unit.

- Spatial openings created by the proposed treatment should provide opportunities for the establishment of natural regeneration of intolerant species.

Anticipated Future Treatments:

- The current treatment is designed to move this stand toward an old growth condition. A treatment similar to this proposed action may or may not be required in approximately 20 years.

- Stand conditions would be monitored and evaluated at regular intervals following the project period. Salvage or sanitation operations associated with insect and disease outbreaks, extreme weather events, or other unexpected circumstances would be evaluated on a case by case basis.

****

Harvest Unit: 4 **Harvest Unit Acres:** 29

Elevation: 3000' - 3300' **Slope:** 35% **Aspect:** East

Habitat Type(s): PSME/VAGL

Soil Type: Gravelly, cobbly loam, deep, well drained, and non calcareous.

Estimated Overstory Basal Area: 160 ft^2

Description of Existing Stands: This unit lies on an east aspect above a deep draw which bisects the west half of this section. The unit is covered by a tightly closed canopy of Douglas-fir (80%), Ponderosa pine (15%), and western larch (5%). This overstory averages 90 years in age. DBH generally falls between 12" and 16". Tree heights of all species generally fall between 65' and 80'. An intermediate canopy of suppressed, poorly formed Douglas-fir also covers a majority of this stand. Regeneration of Douglas-fir is present in all areas. A severe weather event (ice, snow load, and high wind) during the winter of 1996/1997 created widespread windfall and breakage in both the overstory and intermediate layers of this stand. This volume has not been harvested and remains on the site. Root and stem rots are common in the Douglas-fir and mortality centers are found throughout the stand. Dwarf mistletoe is present in Douglas-fir. Indications of Douglas-fir beetle activity are present at this time. Western pine beetle and mountain pine beetle are active at low levels in Ponderosa pine. Unidentified mortality is occurring in Ponderosa pine found in the lower elevations of this stand. Snags in all size classes are common and found in all areas of the stand (> 8/acre). Broken trees 30' to 40' in height are common in all stand areas. Surface fuel loading averages 30 tons/acre, but some concentrations exceeding 60 tons/acre are present.

Treatment Objectives:

- Create improved habitat conditions for big game species by reducing stocking level and removing barriers to movement.

- Control insect and disease activity in the area.

Prescribed Treatment:

- Reduce the basal area to average 40 ft^2 to 60 ft^2 per acre.

- Eliminate barriers to wildlife movement with a combination of slashing and intensive excavator piling.

- Remove all Ponderosa pine under attack by western pine beetle or mountain pine beetle. Remove all Douglas-fir within a 50' radius of all root disease pockets. Remove Douglas-fir showing indications of Douglas-fir beetle attack. Remove Douglas-fir which are severely affected by dwarf mistletoe.

Hazard Reduction:

- Retain a minimum of 30% small diameter (> 3" dia.) slash left on unit to be trampled and crushed during excavator piling of the unit. Excavator piling with particular attention to include existing downfall and debris would be conducted following harvest activity.

- Landing piles would be burned by DNRC crews following harvest operations.

- Excavator piles would be burned by DNRC crews following completion of contract excavator piling.

Regeneration/Site Prep:

- Regeneration is not a primary objective for this unit.

- Spatial openings created by proposed treatments should provide opportunities for natural regeneration of all tree species present in this stand.

Anticipated Future Treatment:

- Stand conditions would be monitored and evaluated at regular intervals following the project period. Salvage or sanitation operations following insect and disease outbreaks, extreme weather events, or other unexpected circumstances would be evaluated on a case by case basis.

- Stand would be reviewed for possible regeneration harvest in the year 2040.

****

Harvest Unit: 5 **Harvest Unit Acres:** 21

Elevation: 3000'- 3300' **Slope:** 30% **Aspect:** Southwest

Habitat Type: PSME/CARU

Soil Type: Gravelly cobbly loam, deep, well drained, and non-calcareous.

Estimated Overstory Basal Area: 80 Ft^2/acre

Description of Existing Stand: This unit lies to the east and above the draw which bisects the west half of this section.

The unit is covered by an moderately open canopy of ponderosa pine (95%) and Douglas-fir (5%). The average overstory age in this area is 90 years. DBH generally falls between 14" and 18". Tree heights average 75'. An additional widely scattered and open intermediate canopy of suppressed and poorly formed ponderosa pine also exists in this area. Little regeneration is present, although pockets of Douglas-fir occur in the lower elevations. A major attack by western pine beetle in 1994 resulted in the mortality of approximately 15% of the mature trees in this stand. These trees were removed by helicopter in a 1995 salvage operation. Western pine beetle and mountain pine beetle are again active in this area, but not at levels equal to 1994. Red turpentine beetles are present in Ponderosa pine as a secondary invader. Western gall rust is present in Ponderosa pine at low levels of occurrence. Large snags (> 14" DBH) are present at around 2/acre, but firewood cutters are reducing their numbers. Surface fuel loading averages 3 to 4 tons/acre.

Treatment Objectives:

- Improve habitat for big game species.
- Rejuvenate forage and browse species preferred by big game species.
- Control insect and disease activity in the area of this stand.

Prescribed Treatment:

- Reduce stand basal area to an average of 40 ft^2 per acre.
- Conduct low intensity broadcast burn through the stand area and adjacent open grassland.
- Remove all Ponderosa pine under attack by western pine beetles or other insects and/or diseases.

Hazard Reduction:

- Proposed broadcast burn would dispose of slash to meet hazard reduction requirements.
- Landing piles would be burned by DNRC crews following harvest activity.

Regeneration/Site Prep:

- Regeneration is not a primary objective in this unit.
- Spatial openings created by tree removal, along with

broadcast burning, should provide opportunities for the establishment of natural regeneration of intolerant species.

Anticipated Future Treatments:

- The proposed treatment should move this stand upward in age class and towards an old growth condition. No future activities are planned for this stand at this time.

- Stand conditions would be monitored and evaluated at regular intervals following the proposed project activity. Salvage or sanitation operations following insect or disease attack, extreme weather events, or other unexpected circumstances would be evaluated on a case by case basis.

****

Harvest Unit: 6 **Harvest Unit Acres:** 21

Elevation: 2500'- 3000' **Slope:** 10% - 70% **Aspect:** West

Habitat Type: PIPO/FEID

Soil Type: Gravelly to very gravelly loam, deep and well drained.

Estimated Overstory Basal Area: 100 ft^2/acre

Description of Existing Stand: This stand occupies a steep slope east of the draw which bisects the west half of Section 36. The overstory is primarily Ponderosa pine (95%) with only occasional presence of other species. Overstory age averages 90 years but scattered remnant trees from previous stands exceed 200 years in age. DBH averages 14" to 18"; tree heights generally fall between 75' and 90'. This overstory forms a tightly closed canopy over the lower elevations of the stand, gradually opening as elevation increases. Very little intermediate canopy layer is present. Regeneration is rare, found only in the extreme lower elevations of the stand. Douglas-fir is the primary regenerating species, with only trace amounts of other species present. Mountain pine beetle and western pine beetle are somewhat active in this stand at this time. Large snags (>14" DBH) are found at an average of 2/acre. Surface fuel loading ranges from 10 to 12 tons/acre in the lower areas to 3 to 4 tons/acre in the upper elevations.

Treatment Objectives:

- Improve habitat for big game species.

- Rejuvenate forage and browse species preferred by big game species.

- Control insect and disease activity in this stand.

Prescribed Treatment:

- Reduce stand basal area to an average of 40 ft^2/acre.
- Conduct a low intensity broadcast burn through the stand and adjacent open grassland.
- Remove all Ponderosa pine under attack from western pine beetle, mountain pine beetle, or other detrimental insects and/or diseases.

Hazard Reduction:

- Proposed broadcast burn would dispose of slash to meet hazard reduction requirements.
- Landing piles would be burned by DNRC crews following harvest activity.

Regeneration/Site Prep:

- Regeneration is not a primary objective for this unit and stand.
- Spatial openings created by tree removal and broadcast burn should provide opportunities for establishment of natural regeneration of intolerant species.

Anticipated Future Treatments:

- The proposed treatment would move this stand upward in age class toward an old growth condition. No future activity is planned for this stand at this time.
- Stand conditions would be monitored and evaluated at regular intervals following the project period. Salvage and sanitation operations associated with insect and disease activity, extreme weather events, or other unexpected circumstances would be evaluated on a case by case basis.

****

Harvest Unit: 7 **Harvest Unit Acres:** 21

Elevation: 2500' - 3000' **Slope:** 10% - 60% **Aspect:** East

Habitat Type: PSME/PHMA

Soil Type: Gravelly to very gravelly loam, deep and well drained.

Estimated Overstory Basal Area: 120 ft^2/acre

Description of Existing Stand: This stand occupies a steep slope west of the draw bisecting the west half of Section 36. The overstory is a mixture of Ponderosa Pine (40%) and Douglas-fir (60%). The pine component is generally found in the lower elevational area of the unit. Overstory age averages 90 years. DBH averages 10" to 14" in all species. Heights average 60' to 75'. This overstory forms a moderately closed canopy layer over most of the unit. An intermediate canopy of suppressed, poorly formed Douglas-fir covers a majority of the area. Regeneration of Douglas-fir is found in scattered pockets through the stand, but is not consistent in its distribution. A severe weather event (ice, snow load, wind) during the winter of 1996/1997 created widespread windfall and breakage in both the overstory and intermediate canopy layers of this stand. This material has not been harvested and remains on the site. Root and stem rots are common in the Douglas-fir and mortality centers are found throughout the stand. Dwarf-mistletoe is present in Douglas-fir. Indications of Douglas-fir beetle activity are present at this time. Western pine beetle and mountain pine beetle are active in the Ponderosa pine at low levels. Snags in all DBH classes are common and found in all areas of the stand (> 8/acre). Broken trees 30' to 40' in height are found individually and in groups across the entire area. Surface fuel loading averages 30 tons/acre but some concentrations exceeding 60 tons/acre are present.

Treatment Objectives:

- Improve habitat conditions for big game species.

- Control insect and disease activity in the area.

Prescribed Treatment:

- Reduce stocking level of overstory trees to 60 ft^2/acre.

- Eliminate barriers to downfall which exist in this stand by removing down dead logs and intensive slashing of non merchantable material. Excavator piling will be conducted where possible.

- Remove all Ponderosa pine under attack from insects and/or disease. Remove Douglas-fir heavily affected by dwarf mistletoe, root and stem rots, insect attack, and other detrimental insect/disease conditions.

Hazard Reduction:

- Retain a minimum of 30% of small diameter slash (< 3" dia) created in harvest operations, to be lopped and scattered, or trampled in areas of excavator piling. Damaged non merchantable standing material would be cut, lopped, and scattered.

- Landing piles would be burned by DNRC crews following harvest activity.

- Excavator piles would be burned by DNRC crews following contract excavator piling.

Regeneration/Site Preparation:

- Regeneration is not a primary objective for this unit.

- Spatial openings created by tree removal should result in opportunities for establishment of natural regeneration of all tree species present in this stand.

Anticipated Future Treatment:

- Stand conditions would be monitored and evaluated at regular intervals following the project period. Salvage or sanitation operations following insect and disease outbreaks, extreme weather events, or other unexpected circumstances would be evaluated on a case by case basis.

- Stand would be reviewed for possible regeneration harvest in the year 2040.

ATTACHMENT 4

WEEKSVILLE CREEK TIMBER SALE
BIODIVERSITY ANALYSIS

Current and appropriate cover types have been determined for the Plains Unit. The following tables indicate the changes the proposed action will have on current types and reflect them against the appropriate types. Comparisons are made for both the project area and the entire Plains Unit.

WEEKSVILLE CREEK CURRENT AND POST TREATMENT COVER TYPES

STAND #	APPRO TYPE	CURR TYPE	CURR AGE	STAND ACRES	TRMT TYPE	TRMT ACRES	POST TRMT TYPE	POST TRMT AGE
1	PP	PP	90	26	SAN	6	PP	90
2	PP	PP	90	20	SAN	12	PP	90
3	DF	DF	90	14	SAN/GS	14	DF	110
4	PP	PP	90	16	CT	16	PP	110
5	PP	PP	110	35	CT/GS	17	PP	110
6	PP	PP	70	25	CT	15	PP	90
7	PP	PP	90	42	CT/GS	16	PP	140
					None	26	PP	90
8	WL/DF	WL/DF	90	35	STR	26	WL/DF	1
						9	WL/DF	90
9	PP	PP	90	44	CT	13	PP	90
10	PP	PP	90	27	CT	27	PP	110
12	PP	PP	90	18	CT	18	PP	110
13	WL/DF	PP	90	34	STR	26	WL/DF	1
					None	8	WL/DF	90
16	PP	PP	90	8	SAN	4	PP	110
18	PP	PP	120	51	SAN/GS	8	PP	120
TOTAL				395		218		

Treatment Types:

CT	Commercial Thin
GS	Group Selection
STR	Seed Tree Regeneration
SAN	Sanitation

WEEKSVILLE CREEK TIMBER SALE
BIODIVERSITY ANALYSIS

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WEEKSVILLE CREEK CURRENT AND POST TREATMENT COVER TYPES

STAND #	APPRO TYPE	CURR TYPE	CURR AGE	STAND ACRES	TRMT TYPE	TRMT ACRES	POST TRMT TYPE	POST TRMT AGE
1	PP	PP	90	26	SAN	6	PP	90
2	PP	PP	90	20	SAN	12	PP	90
3	DF	DF	90	14	SAN/GS	14	DF	110
4	PP	PP	90	16	CT	16	PP	110
5	PP	PP	110	35	CT/GS	17	PP	110
6	PP	PP	70	25	CT	15	PP	90
7	PP	PP	90	42	CT/GS None	16 26	PP PP	140 90
8	WL/DF	WL/DF	90	35	STR	26 9	WL/DF WL/DF	1 90
9	PP	PP	90	44	CT	13	PP	90
10	PP	PP	90	27	CT	27	PP	110
12	PP	PP	90	18	CT	18	PP	110
13	WL/DF	PP	90	34	STR None	26 8	WL/DF WL/DF	1 90
16	PP	PP	90	8	SAN	4	PP	110
18	PP	PP	120	51	SAN/GS	8	PP	120
TOTAL				395		218		

Treatment Types:

CT	Commercial Thin
GS	Group Selection
STR	Seed Tree Regeneration
SAN	Sanitation

PLAINS UNIT AREA BY CURRENT TYPE AND APPROPRIATE TYPE			
	CURRENT TYPE	APPROPRIATE TYPE	TYPE STATUS (Current minus appropriate)
ALP	692.8	179.6	+513.2
DF	2,089.8	2,261.2	-171.4
HW	110.9	110.9	0
LPP	3,578.7	2,763.5	+815.2
MC	8,663.9	1,479.6	+7,184.3
PP	27,901.8	27,948.8	-47.0
WL/DF	9,057.4	17,686.2	-8,628.8
WWP	306.8	366.1	-59.3
NON STKD	393.8		
TOTAL	52,795.9	52,795.9	

PLAINS UNIT AREA BY APPROPRIATE AND POST TREATMENT TYPE			
	APPROPRIATE TYPE	POST TREATMENT TYPE	TYPE STATUS (Post Treatment minus appropriate)
	ACRES		
ALP	179.6	692.8	+513.2
DF	2,261.2	2,089.8	-171.4
HW	110.9	110.9	0
LPP	2,763.5	3,578.7	+815.2
MC	1,479.6	8,663.9	+7,184.3
PP	27,948.8	27,867.8	-81.0
WL/DF	17,686.2	9,091.4	-8,594.8
WWP	366.1	306.8	-59.3
NONSTK		393.8	
TOTAL	52,795.9	52,795.9	-

PLAINS UNIT CURRENT COVER TYPES BY AGE CLASS

	STAND AGE CLASS				
	1-39	40-99	100-OG	OLD GROWTH	TOTAL
	ACRES				
ALP	0	206.6	326.0	160.2	692.8
DF	0	829.9	775.1	484.8	2,089.8
HW	0	0	110.9	0	110.9
LPP	601.0	2,253.2	687.2	37.3	3,578.7
MC	124.1	2,601.6	4,344.6	1,593.6	8,663.9
NONSTKD	393.8	0	0	0	393.8
PP	459.4	9,172.2	11,517.8	6,752.4	27,901.8
WL/DF	440.9	2,652.0	4,028.2	1,936.3	9057.4
WWP	103.3	44.5	95.6	63.4	306.8
TOTAL	1,917.5	17,899.0	21,895.4	11,028.0	52,795.9

PLAINS UNIT POST TREATMENT COVER TYPES BY AGE CLASS

	STAND AGE CLASS				
	1:39	40:99	100:OG	OLD GROWTH	TOTAL
	ACRES				
ALP	0	206.6	326.0	160.2	692.8
DF	0	829.9	775.1	484.8	2089.8
HW	0	0	110.9	0	110.9
LPP	601.0	2,253.2	687.2	37.3	3,578.7
MC	124.1	2,601.6	4,344.6	1,593.6	8,663.9
NONSTKD	393.8	0	0	0	393.8
PP	459.4	9,156.2	11,533.8	6,752.4	27,901.8
WL/DF	492.9	2,600.0	4,028.2	1,936.3	9057.4
WWP	103.3	44.5	95.6	63.4	306.8
TOTAL	2,174.5	17,692.0	21,901.4	11,028.0	52,795.9

ATTACHMENT 5

CUMULATIVE EFFECTS

Roads: Current open road density is 2.25 miles. Following the completion of the proposed action Open Road Density would be reduced to .75 miles. This open road density is composed of Forest Service Road # 887 only. No roads would remain open into or through the State section following the project. There would be no connection to other systems during or following the project. No road construction is planned on adjacent ownerships at this time, nor is any anticipated in the foreseeable future.

Watershed: The cumulative watershed effects boundary incorporates the Weeksville Creek drainage including subwatersheds Spring Creek and Teepee Creek. Due to unit prescription, design, and location it is unlikely that any effects for the proposed activities will be detectable downstream of this point. Detailed watershed analysis is included in Appendix 2, Specialist Reports.

Soils: Implementation of the proposed activities would include mitigation measures to limit additional soil impacts. The proposed harvesting would utilize existing skid trails where possible to limit cumulative soil compaction impacts. Soil productivity would be reduced in areas of new road construction and reconstruction. Abandoned roads would realize a slow reduction in soil compaction as vegetation reestablishes and soil productivity increases. Obliterated roads would result in increased soil productivity due to decompaction of soil, and revegetation.

Wildlife: The proposed activity is designed to improve wildlife habitat for all species with special emphasis directed toward big game. Specific vegetation treatments directed to improve habitat for Rocky Mountain Bighorn Sheep are designed into the project. USFS is planning habitat improvement burns immediately north of the State section, also directed to improving big game habitat. Specifics are included in the wildlife biologist analysis included in Attachment 2, Specialist Reports.

Vegetation: Effects to vegetation were analyzed over the entire Plains Unit in the Bidiversity Analysis found in Attachment 4. The overall effect of the proposed stand treatments will result in progressing several stands toward old growth conditions, while converting one stand to it's historic cover type. Adjacent private sector landowners to the south and east of this section maintain land in agriculture and residential use with little change expected for an extended period of time. Private ownership to the west has limited access due to terrain, and limited timber volume indicates a low possibility of activity in that area. Timber harvest activity on U.S. Forest Service land to the north of this section is currently under analysis by that agency. No Forest Service activity is planned on land immediately adjacent to Section 36.

ATTACHMENT 6

WEEKSVILLE CREEK TIMBER SALE

ECONOMIC ANALYSIS

The estimated total timber harvest volume under the proposed action is 1.1 million board feet (1,100 MBF). This converts to 7,150 tons using generalized conversion rates.

The estimated stumpage rate, or price basis of transaction with purchaser, is $28.00 per ton. MBF rate computes to $182.00 per MBF.

The total estimated return to the trust is $200,200.00 (7150 X $ 28.00).

The estimated stumpage rate is based on comparable sales of the recent past.

Costs related to administration of the timber sale are tracked only at the regional and statewide levels. DNRC does not track project level costs for individual timber sales.

Following are regional and statewide revenue-to-cost ratios for recent fiscal years:

	FY94	FY95	FY96	FY97	FY98
Northwest Area	3.33	2.41	1.51	1.52	1.58
Statewide	2.68	2.07	1.68	1.89	1.72

Costs, revenues, and estimates of return are estimates intended for comparison of alternatives. They are not intended to be used as absolute estimates of returnn.

PROPOSED WEEKSVILLE HARVEST UNITS				
Unit	Unit Acres	Est Volume	Est Cut Volume	Est Total Cut
1	16	8 MBF/Acre	4 MBF/Acre	64 MBF
2	52	12 MBF/Acre	10 MBF/Acre	520 MBF
3	58	8 MBF/Acre	3 MBF/Acre	174 MBF
4	29	10 MBF/Acre	6 MBF/Acre	174 MBF
5	21	6 MBF/Acre	2 MBF/Acre	42 MBF
6	21	6 MBF/Acre	2 MBF/Acre	42 MBF
7	21	8 MBF/Acre	4 MBF/Acre	84 MBF
TOTAL	218			1,100 MBF

Three Most Recent Sales from NWLO

	Stumpage Winning Bid $/Ton	Tons	Ave DBH	Tons Per Acre Harvest	Percent Logging Method Tractor	Skyline	Soft Track	Sold Date
Rhodes Draw - Kalispell	$ 36.05	7,869	12.0	20.0	73%	0%	26%	4/28/99
Cook-Bear - Plains	$ 26.25	17,514	9.9	19.3	57%	43%	0%	3/4/99
Magpie Creek - Plains	$ 26.90	12,280	13.0	28.5	71%	29%	0%	4/6/99
Weight Average	$ 28.51							

	Stumpage Winning Bid $/Ton	Appraised Dev. Cost $/Ton	Earmarked Funds $/Ton	Other Collection $/Ton	Total Collection $/Ton
Rhodes Draw - Kalispell	$ 36.05	$ 2.09	$ 7.14	$ -	$ 45.28
Cook-Bear - Plains	$ 26.25	$ 2.11	$ 7.14	$ 1.83	$ 37.33
Magpie Creek - Plains	$ 26.90	$ 10.60	$ 7.14	$ -	$ 44.64

Tons converted to MBF based on 6.5 * ton = MBF

	Stumpage Winning Bid $/MBF	Appraised Dev. Cost $/MBF	Earmarked Funds $/MBF	Other Collection $/MBF	Total Collection $/MBF
Rhodes Draw - Kalispell	$ 234.33	$ 13.59	$ 46.41	$ -	$ 294.32
Cook-Bear - Plains	$ 170.63	$ 13.72	$ 46.41	$ 11.90	$ 242.65
Magpie Creek - Plains	$ 174.85	$ 68.90	$ 46.41	$ -	$ 290.16

Bidders	-	Sales	-
Thompson River Lbr	Cook-Bear	Magpie Creek	
Stimson Lumber		Magpie Creek	
Louisiana Pacific		Magpie Creek	
Plum Creek Mfg			Rhodes Draw
American Timber			Rhodes Draw
F.H. Stolze			Rhodes Draw

ATTACHMENT 7

MITIGATION MEASURES

Roads: A transportation system minimizing road miles and meeting all BMP's has been designed by the DNRC. Roads currently in place that do not meet BMP standards will be either closed or obliterated during the construction phase of the project. Roads constructed in conjunction with this project will remain in place following project activity, but will be grass seeded and closed to use following the project. Existing roads to be incorporated into the transportation system would be upgraded to meet all BMP's. Open road density on this section currently totals 2.1 miles. Following closures and obliteration completed at the conclusion of this project, only the main Weeksville Creek Road (FS # 887) would remain open for a total open road density of .75 miles.

Biodiversity/Old Growth: No entry or activity is planned in old growth stands on this section. Tree removals are designed to move several stands toward old growth conditions. Use of prescribed fire is intended to rejuvenate shrub and forb species for improved big game habitat.

Wildlife: Stand treatments are designed to improve habitat for big game species which use the section. Recommendations to reduce stand basal area and the removal of barriers to movement are included in the treatments. Use of prescribed fire to rejuvenate preferred browse species is included in the project plan. Snags will be left in all harvest units to be used by the dependent species. Dead topped cull trees existing in the overstory will be left for use by snag dependent cavity nesting species. No activity is planned within the Weeksville Creek SMZ, and disruptions to wildlife there are not anticipated.

Soil: Soils exposed by construction activity will be grass seeded as soon as it is practically possible. Skid trails will be water barred to limit erosion following project activity. Filter windrows will be used to assist in stabilizing fill slopes of roads. All road design will include drainage measures to limit erosion.

Hydrology/Watershed/Water Quality: No harvest activity will take place within SMZ's. Roads existing within SMZ's will be closed and allowed to revegetate. Proper drainage features will be included in all new and reconstructed road requirements.

Noxious Weeds: A weed management plan has been developed which includes use of prescribed fire, herbicide application, and seeding of native grass species. Roadside weeds will be treated with herbicide. The large open meadow area found near the center of the section (approximately 40 acres) plus limited areas of adjoining timber stands will be burned and treated with herbicide. The meadow will then be seeded to limit reestablisment of knapweed and cinqufoil. Natural grasses and forbs will follow and should further limit the reestablishment of weed species.

Visual Impacts/Aesthetic Values: No planned activity is visible from the residences on Buffalo Bill Creek. The treatment specified for Unit 1 would create a stand appearing as a traditional western Montana Ponderosa pine stand. The regeneration cut planned for Unit 2 would be screened from the Weeksville Creek Road (FS Road # 887) by a 50 to 60 foot buffer strip with no trees removed.

ATTACHMENT 8

INVOLVED AGENCIES AND ORGANIZATIONS/INDIVIDUALS CONSULTED/REFERENCES

Agencies and Organizations:

Confederated Salish and Kootenae Tribes; Pablo, Montana

Foundation for North American Wild Sheep; Cody, Wyoming

Lolo National Forest, Plains/Thompson Falls Ranger District; Plains, Montana

Montana Department of Fish, Wildlife and parks; Thompson Falls, Montana

Rocky Mountain Elk Foundation; Missoula, Montana

Wilbur-Ellis Corporation; Liberty, Missouri

Individuals Consulted

Jeff Collins; MT DNRC, Forest Management Bureau, Missoula, Montana

Mike Conner; MT DNRC, Northwestern Land Office, Kalispell, Monmtana

James Cross; Contract Wildlife Biologist, Kalispell, Montana

Mike Fairchild; MT DNRC, Northwestern Land Office, Kalispell, Montana

Pat Flowers; MT DNRC, Forest Management Bureau, Missoula, Montana

Gary Hadlock; MT DNRC, Northwestern Land Office, Kalsipell, Montana

Tom Hammock; H and H Land Consulting, Libby, Montana

Jon Hayes; MT DNRC, Kalispell/Plains Unit, Plains, Montana

Jack Isaacs; MT DNRC, Kalispell/Plains Unit, Plains, Montana

Norm Merz; MT DNRC, Northwestern Land Office, Kalispell, Momntana

Marvin Miller; MT DNRC, Northwestern Lands Office, Kalispell, Montana

Jeff Reistroffer; MT DNRC, Kalispell/Plains Unit, Plains, Montana

Peter Rice; Division of Biological Sciences, University of Montana, Missoula, Montana

Bruce Sterling; Montana Department of Fish, Wildlife, and Parks, Thompson Falls, Montana

Marc Vesser, MT DNRC, Northwestern Land Office, Kalispell, Montana

Allen Wolf; MT DNRC, Northwestern Land Office, Kalispell, Montana

Everett Young; MT DNRC, Kalispell/Plains Unit, Plains, Montana

Special References

Restoration of Bighorn Sheep to Hells Canyon: The Hell's Canyon Initiative. Boise, Idaho: Bureau of Land Management, Idaho State Office; 1997: vi, 59p (Technical Bulletin (United States. Bureau of Land Management. Idaho State Office); 97-14).

State Forest Land Management Plan, Montana Department of Natural Resources and Conservation, 1996

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Ballantyne, Larry
Environmental analysis for the Weeksville Creek timber sale

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